Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-37. (Canceled)

38. (New) A method for the spatially resolved determination of magnetic particle distribution for the determination of at least one of physical, chemical and biological properties and parameters within an area of examination of an object of examination, the method comprising acts of:

introducing magnetic particles in at least a portion of the area of examination ;

generating a magnetic field with a spatial distribution of a magnetic field strength such that the area of examination includes a first sub-area with lower magnetic field strength and a second sub-area with a higher magnetic field strength;

changing the spatial location of both sub-areas in the area of examination so that the magnetization of the particles changes locally;

acquiring signals that depend on the magnetization in the area of examination influenced by the changing of the spatial location of both sub-areas; and

evaluating the signals to obtain information about the anisotropy of the magnetic particles in the area of examination.

39. (New) The method as claimed in claim 38, comprising an act of introducing an additional influencing variable in addition to the magnetic field into the area of examination where the at least one of a distribution and anisotropy of the magnetic particles is changed as a result of the introduced additional influencing variable in at least one portion of the area of examination.

40. (New) The method as claimed in claim 38, wherein the magnetic particles have a form that the magnetic particles do not have a preferential magnetic direction.

41. (New) The method as claimed in claim 38, comprising an act of selecting the magnetic particles to be one of enzymatically broken down or metabolized in at least one portion of the area of examination.

42. (New) The method as claimed in claim 38, comprising an act of subjecting the area of examination to sound so that magnetostriction occurs in at least a portion of the magnetic particles.

43. (New) The method as claimed in claim 38, wherein the act of evaluating the signals comprises and act of detecting a change in the anisotropy of the magnetic particle.

44. (New) The method as claimed in claim 43, comprising an act of correlating the change anisotropy of the magnetic particles with at least one of a temperature, sound level and a local pH value.

45. (New) The method as claimed in claim 43, comprising an act of correlating the change anisotropy of the magnetic particles with a presence or absence of one or more enzymes.

46. (New) The method as claimed in claim 38, comprising an act of selecting a magnetic particle composition having a magnetization curve with a magnetization step change.

47. (New) The method as claimed in claim 46, wherein the magnetization step change, as measured in an aqueous suspension, comprises a first field strength window of magnitude delta around an inflection point of the step change of at least a factor 3 higher than a magnetization change in field strength window of magnitude delta below the first field strength window, wherein delta is less than 2000 microtesla and wherein the time in which the magnetization step change is completed in the first field strength window is less than 0.01 seconds.

48. (New) The method as claimed in claim 46, wherein the magnetization step change, as measured in an aqueous suspension, comprises a first field strength window of magnitude delta around an inflection point of the step change of at least a factor 3 higher than a magnetization change in field strength window of magnitude delta above the first field strength window, wherein delta is less than 2000 microtesla and wherein the time in which the magnetization step change is completed in the first field strength window is less than 0.01 seconds.

49. (New) A method to improve resolution during a determination of a spatial distribution of magnetic particles in an area of examination, the method comprising acts of:

generating a magnetic field with a spatial distribution of the magnetic field strength such that the area of examination includes a first sub-area with lower magnetic field strength and a second sub-area with a higher magnetic field strength;

changing the spatial location of both sub-areas in the area of examination so that the magnetization of the particles changes locally;

introducing a high frequency field in the area of examination so that a temperature of a magnetic particle spin system is increased;

acquiring signals that depend on the magnetization in the area of examination influenced by the changing of the spatial location of both sub-areas; and

evaluating the signals to obtain information about a spatial distribution of the signals in the area of examination.

50. (New) The method as claimed in claim 49, wherein the high frequency field is introduced with a frequency in a range between

100 kHz to 100 GHz.

51. (New) The method as claimed in claim 49, wherein the magnetic particles are mono-domain particles that are reverse magnetized by one of Neel rotation and Brownian rotation.

52. (New) The method as claimed in claim 49, wherein the magnetic particles are hard magnetic multi-domain particles.

53. (New) The method as claimed in claim 49, wherein the magnetic particles are soft magnetic multi-domain particles.

54. (New) The method as claimed in claim 49, wherein the magnetic particles comprise hard magnetic materials.

55. (New) The method as claimed in claim 54, wherein the hard magnetic materials comprise at least one of Al-Ni, Al-Ni-Co, Fe-Co-V alloys, and barium ferrite ($BaO\ 6xFe_2O_3$).

56. (New) A device for improving resolution during a determination of a spatial distribution of magnetic particles in an

area of examination, the device comprising:

a means for generating a magnetic field with a spatial distribution of the magnetic field strength such that the area of examination includes a first sub-area with lower magnetic field strength and a second sub-area with a higher magnetic field strength;

a means for changing the spatial location of both sub-areas in the area of examination so that the magnetization of the particles changes locally;

a high frequency generating means for generating a high frequency field to irradiate the area of examination such that the temperature of the magnetic particle spin system is increased;

a means for acquiring signals that depend on magnetization in the area of examination influenced by the changing of the spatial location of both sub-areas; and

a means for evaluating the signals to obtain information about the spatial distribution of the signals in the area of examination.

57. (New) The device according to claim 56, wherein the frequency generated by the high frequency generating means is between 100 kHz and 100 GHz.

57. (New) The device according to claim 56, wherein the frequency generated by the high frequency generating means is between 10 and 100 MHz.